

CLAIMS

1. A data storage element, comprising:
a primary data input;
5 a primary clock input for selecting storage of a level of the primary data input;
an alternate data input, wherein the alternate data input is received by an
inverter-style branch circuit; and
an alternate clock input for selecting storage of a level of the alternate data
input.
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2. The data storage element according to claim 1, further comprising:
a first latch element for storing one of the primary data input and the alternate
data input, the first latch element comprising:
a totem pole circuit including of at least six transistors, wherein two of the six
15 transistors have a gate signal derived from the primary clock input and two of the six
transistors have a gate signal derived from the alternate clock input.
3. The data storage element according to claim 2, further comprising a second
latch element, wherein the second latch element selectively stores an output of the
20 first latch element and the second latch element comprises a second latch data
input circuit comprising a transmission gate.
4. The data storage element according to claim 1, wherein at least one of the
alternate data input and the alternate clock input comprise circuits with lower
25 bandwidths than at least one of the primary data input and the primary clock input.

5. The data storage element according to claim 4, wherein an input circuit of at least one of the alternate data input and the alternate clock input comprise transistors with higher pass resistance than an input circuit of at least one of the primary data input and the primary clock input.

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6. An arithmetic unit comprising:

a data storage element, the data storage element comprising:

a primary data input;

a primary clock input for selecting storage of a level of the primary data

10 input;

an alternate data input, wherein the alternate data input is received by an inverter-style branch circuit; and

an alternate clock input for selecting storage of a level of the alternate data input.

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7. A library of integrated circuit modules, comprising:

a per-defined data storage element, the pre-defined data storage element comprising:

a primary data input;

20 a primary clock input for selecting storage of a level of the primary data input;

an alternate data input, wherein the alternate data input is received by an inverter-style branch circuit; and

an alternate clock input for selecting storage of a level of the alternate

25 data input.

8. A data storage element, comprising:
a first AND gate with a first input and a second input;
a second AND gate with a first input and a second input;
a third AND gate with a first input, a second input and a third input, wherein
5 the first input of the third AND gate receives a signal corresponding to an inverted
signal received by the second input of the first AND gate, the second input of the
third AND gate receives a signal corresponding to an inverted signal received by the
second input of the second AND gate and the third input receives an output of an
inverter; and
10 a NOR gate for receiving the outputs of each of the first AND gate, the
second AND gate and a third AND gate and providing an output that is received by
an input of the inverter.
9. The data storage element according to claim 8, wherein at the first input and
15 the second input of the first AND gate receive an alternate data input and an
alternate clock input and comprise circuits with lower bandwidths than the first input
and the second input of the second AND gate.
10. The data storage element according to claim 9, wherein the circuits with lower
20 bandwidth comprise transistors with higher pass resistance than circuits of the first
input and the second input of the second AND gate.